CLAIMS

1. A photo-voltaic device for the conversion of light to electricity, comprising:

a doped semiconductor structure for the conversion of light to electromotive force residing in a first plane; and

a silver-alloy layer residing in a second plane, said silver-alloy including silver and copper, wherein the relationship between the amounts of silver and copper in the silver-alloy is defined by $Ag_xCu_s$, wherein $0.9 < x < 0.9999$, and $0.0001 < s < 0.10$, and wherein said first plane is substantially parallel to said second plane.

2. The photo-voltaic device of claim 1, wherein $0.0005 < s < 0.05$.

3. The photo-voltaic device of claim 1, wherein said silver-alloy layer is 3 to 25 nm thick.

4. The photo-voltaic device of claim 1, wherein said silver-alloy layer surface is roughened.

5. A photo-voltaic stack for the conversion of light to electricity, comprising:

a doped semiconductor structure for the conversion of light to electromotive force residing in a first plane; and

a silver-alloy layer residing in a second plane, said silver-alloy including silver and zinc wherein the relationship between the amounts of silver and zinc in the silver-alloy is defined by $Ag_xZn_n$, wherein $0.9 < x < 0.9999$, and $0.0001 < n < 0.10$, and wherein said first plane is substantially parallel to said second plane.

6. The photo-voltaic device of claim 5, wherein $0.0005 < n < 0.05$.

7. The photo-voltaic device of claim 5, wherein said silver-alloy layer is 3 to 25 nm thick.

8. The photo-voltaic device of claim 5, wherein said silver-alloy layer surface is roughened.

9. A photo-voltaic device for the conversion of light to electricity, comprising:

a doped semiconductor structure for the conversion of light to electromotive force residing in a first plane; and

a silver-alloy layer residing in a second plane, said silver alloy including silver and magnesium, wherein the relationship between the amounts of silver and magnesium in the silver-alloy is defined by $Ag_xMg_p$, wherein $0.9 < x < 0.9999$, and $0.0001 < p < 0.10$, and wherein said first plane is substantially parallel to said second plane.

10. The photo-voltaic device of claim 9, wherein $0.0005 < p < 0.05$.

11. The photo-voltaic device of claim 9, wherein said silver-alloy layer is 3 to 25 nm thick.

12. The photo-voltaic device of claim 9, wherein said silver-alloy layer surface is roughened.

13. A photo-voltaic device for the conversion of light to electricity, comprising:

a doped semiconductor structure for the conversion of light to electromotive force residing in a first plane; and

a silver-alloy layer residing in a second plane, said silver alloy including silver and aluminum, wherein the relationship between the amounts of silver and

aluminum in the silver-alloy is defined by $Ag_xAl_q$, wherein $0.9 < x < 0.9999$, and $0.0001 < q < 0.10$, and wherein said first plane is substantially parallel to said second plane.

14. The photo-voltaic device of claim 13, wherein $0.0005 < q < 0.05$.

15. The photo-voltaic device of claim 13, wherein said silver-alloy layer is 3 to 25 nm thick.

16. The photo-voltaic device of claim 13, wherein said silver-alloy layer surface is roughened.

17. A photo-voltaic device for the conversion of light to electricity, comprising:

a doped semiconductor structure for the conversion of light to electromotive force residing in a first plane; and

a silver-alloy layer residing in a second plane, said silver alloy including silver and nickel wherein the relationship between the amounts of silver and nickel in the silver-alloy is defined by $Ag_xNi_r$, wherein $0.9 < x < 0.9999$, and $0.0001 < r < 0.10$, and wherein said

first plane is substantially parallel to said second plane.

18. The photo-voltaic device of claim 17, wherein $0.0005 < r < 0.05$.

19. The photo-voltaic device of claim 17, wherein said silver-alloy layer is 3 to 25 nm thick.

20. The photo-voltaic device of claim 17, wherein said silver-alloy layer surface is roughened.

21. A photo-voltaic device for the conversion of light to electricity, comprising:

a doped semiconductor structure for the conversion of light to electromotive force residing in a first plane; and

a silver-alloy layer residing in a second plane, said silver alloy including silver and palladium, wherein the relationship between the amounts of silver and palladium in the silver-alloy is defined by $Ag_xPd_m$, wherein $0.9 < x < 0.9999$, and $0.0001 < m < 0.10$, and wherein said first plane is substantially parallel to said second plane.

22. The photo-voltaic device of claim 21, wherein $0.0005 < m < 0.05$.

23. The photo-voltaic device of claim 21, wherein said silver-alloy layer is 3 to 25 nm thick.

24. The photo-voltaic device of claim 21, wherein said silver-alloy layer surface is roughened.

25. A photo-voltaic device for the conversion of light to electricity, comprising:

a doped semiconductor structure for the conversion of light to electromotive force residing in a first plane; and

a silver-alloy layer residing in a second plane, said silver alloy including silver and platinum, wherein the relationship between the amounts of silver and platinum in the silver-alloy is defined by $Ag_xPt_v$, wherein $0.9 < x < 0.9999$, and $0.0001 < v < 0.10$, and wherein said first plane is substantially parallel to said second plane.

26. The photo-voltaic device of claim 25, wherein $0.0005 < v < 0.05$.

27. The photo-voltaic device of claim 25, wherein said silver-alloy layer is 3 to 25 nm thick.

28. The photo-voltaic device of claim 25, wherein said silver-alloy layer surface is roughened.

29. A photo-voltaic device for the conversion of light to electricity, comprising:

a doped semiconductor structure for the conversion of light to electromotive force residing in a first plane; and

a silver-alloy layer residing in a second plane, said silver alloy including silver and an element A, wherein element A is selected from the group consisting of Cr, Zr, Au, Cd, B, In, Be, B, Ti, Si, Li, Bi, Mn, Mo, W, Ga, Ge, Sn, and Sb, and wherein the relationship between the amounts of silver and element A in the metal alloy is defined by $Ag_xA_y$, wherein $0.9 < x < 0.9999$, and $0.0001 < y < 0.10$, and wherein said first plane is substantially parallel to said second plane.

30. The photo-voltaic device of claim 29, wherein $0.0005 < y < 0.05$.

31. The photo-voltaic device of claim 29, wherein said silver-alloy layer is 3 to 25 nm thick.

32. The photo-voltaic device of claim 29, wherein said silver-alloy layer surface is roughened.